MATH - Algebra 1 Semester 2 Lesson: Monday, April 6th

Learning Target:

Students will factor all types of quadratic expressions.

Bell-Ringer

Review Multiplying Binomials Practice: Review Activity

Challenges: *Get all practice problems correct and in a row **Beat your time with perfect score

Learning Target:

Students will factor all types of quadratic expressions.

Let's Get Started on the Lesson:

Watch Video → Factoring: Putting it All Together

Links to Previous Lessons(if you need to Review)

Lesson 4 - Factoring GCF

Lesson 5 - Factoring Trinomials (a=1)

Lesson 6 - Factoring Trinomials (a=1 with GCF)

Lesson 7 - Factoring Trinomials (a>1)

Lesson 8 - Factoring Trinomials (a>1 with GCF)

Lesson 9 - Factor by Grouping

Lesson 10 - Factoring Special Case

Lesson 11 - Factoring Special Case

Practice: Go to this website: Factoring Polynomials

Review and factor the problem on <u>Factoring Polynomials</u>

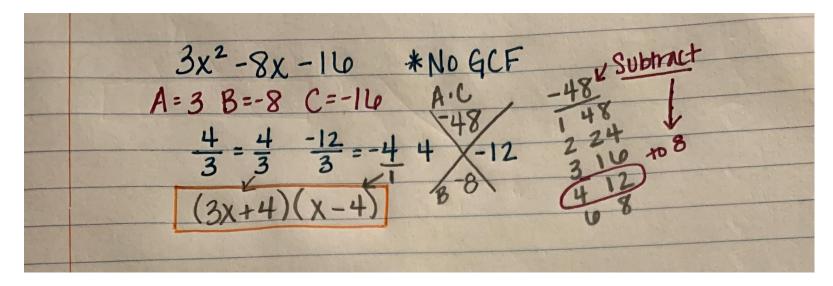
2. Steps to Factoring:

(using the x)

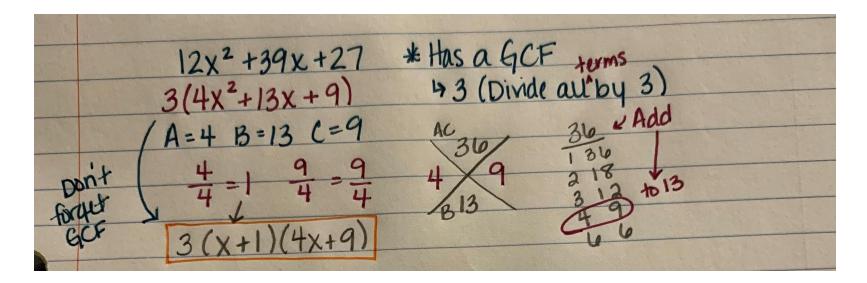
- 1)Look for a GCF
- 2) Label/Know values for A, B, and C.
 - 3) Fill out Top (A times C) and Bottom (B)
 - 4) List multiples of AC
 - AC Positive Add Multiples
 - AC Negative Subtract Multiples
 - 5)Check Signs (Side Numbers: Multiply to top; Add/Subtract to bottom)
 - 6) Divide the side values by A (reduce if you can)
 - 7) Rewrite as factors
 - Denominator is the leading coefficient in the binomial Numerator is the constant in binomial

3. Make sure to review those steps. This will become very important when we get to solving quadratics in a few lessons. Using the x in solving will give you a huge shortcut when finding the values of the zeros/x's.

4. Walk through the following problem on your paper to help you review factoring.



5. Walk through the following problem on your paper to help you review factoring.



6. Walk through the following problem on your paper to help you review factoring.

*Has a GCF $27x^2 - 12$ 43 a=3x b=24 Special Case: Difference of Squares · Square Root of 9x² → 3x(a) · Square Roof of 4 → 2(b)

7. Walk through the following problem on your paper to help you review factoring.

*NO G 25x2+40x+16 4 Special Case: a² + 2ab + b² = (a+b)² · Square Root of 25x²→5x (a) · Square Root of 16 → 4 (b)

8. The next slide starts the independent practice. Try them on your paper and don't be afraid to make a mistake. If you get totally stuck, then you can go to slide 9 for a hint on the problem. The key to the practice is on slide 10.

Independent Practice

Complete the problems [Hints are on the next slide]

Factor each polynomial.

1.
$$x^2 - 7x + 8$$
2. $2x^2 + 4x - 6$
3. $9x^2 - 25$

4. $x^2 + 20x + 100$
5. $6x^2 - 11x - 2$
6. $6x^2 - 24$

Which of the following are factors of the polynomial: $3x^2 - 13x + 12?$

A. (3x + 4)B. (x - 3)C. (3x + 12)D. (x + 12)E. (3x - 1)F. (3x - 4)G. (x - 4)

Independent Practice Hints

Here are some hints to maybe get you started.

Factor each polynomial.

1. $x^2 - 7x + 8$ 2. 3. $9x^2 - 25$ $2x^2 + 4x - 6$ Multiples of 8 that subtract to -7. Has a GCF of 2. Divide all coefficients Special Case - Difference of Squares $a^{2} - b^{2} = (a + b)(a - b)$ by 2. 6x² - 11x - 2 $6x^2 - 24$ $x^{2} + 20x + 100$ 5. 6. 4 Has a GCF of 6 Special Case - 100 is a perfect Multiples of 12 that subtract to -11. AND square. Using X - need to divide side numbers Special Case - Difference of Squares $a^{2} + 2ab + b^{2} = (a + b)^{2}$ by 6. $a^{2} - b^{2} = (a + b)(a - b)$

Which of the following are factors of the polynomial: $3x^2 - 13x + 12?$

A.	(3x + 4)
Β.	(x - 3)
C.	(3x + 12)
D.	(x + 12)
E.	(3x - 1)
F.	(3x - 4)
G.	(x - 4)

Multiples of 36 that subtract to -13. Using X - need to divide side numbers by 3. There are two to select.

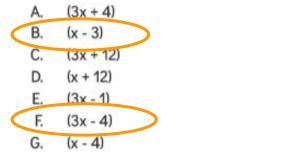
Answer Key

Once you have completed the problems, check your answers here.

Factor each polynomial.

1.
$$x^2 - 7x + 8$$
2. $2x^2 + 4x - 6$ 3. $9x^2 - 25$ $(x - 8)(x + 1)$
or
 $(x + 1)(x - 8)$ $2(x + 3)(x - 1)$
or
 $2(x - 1)(x + 3)$ $(3x + 5)(3x - 5)$
or
 $(3x - 5)(3x + 5)$ 4. $x^2 + 20x + 100$
 $(x + 10)(x + 10)$
 $(x + 10)^2$ 5. $6x^2 - 11x - 2$ 6. $6x^2 - 24$ or
 $(x + 10)^2$ $(x + 10)(x + 10)$
or
 $(x + 10)^2$ $(x + 10)(x + 10)$
or
 $(x + 10)^2$

Which of the following are factors of the polynomial: $3x^2 - 13x + 12?$



Additional Practice:

Click on the links below to get additional practice and to check your understanding!

Practice with Factoring Polynomials (Play Game or Practice with Flashcards) <u>More Practice with Factoring</u> (Play Game or Practice with Flashcards)